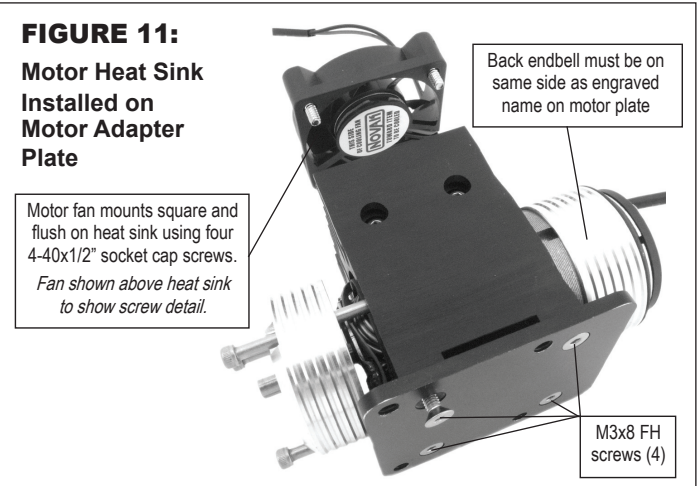


STEP 4 INSTALL BRUSHLESS MOTOR (Continued)

2. ATTACH HEAT SINK TO ADAPTER PLATE

Using a 2.0mm Hex Wrench and four M3x8 FH screws, attach the motor's heat sink on to the motor adapter plate — **the motor's back endbell (end with sensor harness) must be on the side of the engraved name. Screw thread locking agent should be used on these screws to prevent loosening — see Figure 11.**

FIGURE 11:
Motor Heat Sink
Installed on
Motor Adapter
Plate



3. INSTALL MOTOR PINION GEAR

Install a Mod 1 pinion gear to the output shaft. A hardened steel, high-strength pinion gear is recommended with a 5mm bore. Novak offers these pinion gears in 11T-16T (Novak #5100-#5105). Refer to **Figure 14** (on specifics sheet) for recommended pinion gear.

4. INSTALL BRUSHLESS MOTOR ASSEMBLY

Each kit has a unique motor adapter plate.

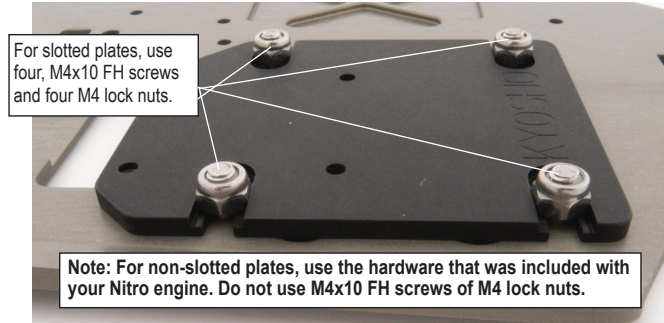
- **Slotted Plates:** require four M4x10 FH screws and four M4 Nylon insert lock nuts — **see Figure 12.**
- **Non-Slotted Plates:** require the four screws (and cupped washers depending on model) that were originally used to mount the nitro engine to the chassis. **Use thread-locking agent on these screws.**

Mount motor assembly to chassis with the proper screws and adjust gear mesh before tightening, being sure that the two clamping screw holes in the heat sink face the outside of the buggy. The motor's solder tabs should face in the direction that will provide the shortest wire length from the ESC to the motor.

- **For Losi 8ight Vehicle:** refer to **Figures 17-19** (on specifics sheet).

FIGURE 12: Motor Adapter Plate Installation (slotted plate shown)

Note: Motor and Heat Sink removed to show screw detail



5. INSTALL MOTOR FAN ON HEAT SINK

For optimal performance, place the included 40x40mm fan square and flush on top of heat sink (*refer to label on fan for direction*).

- Using a 3/32" Hex Wrench, screw four 4-40x1/2" socket cap screws (*in Add'l Hardware Bag*) through fan into heat sink — **see Figure 11 & Figure 14** (on specifics sheet).
- Use included Y-harness (see **Figure 1**) to plug the motor fan and ESC fan into the Novak HV High-Voltage Brushless ESC.

STEP 5 - INSTALL ESC & RECEIVER

1. INSTALL NOVAK HV BRUSHLESS ESC

- Select mounting position for ESC — *refer to Figure 14* (on specifics sheet).
 - **For OFNA & Kyosho Dual Battery Setups:** refer to **Figure 15**
 - **For Losi 8ight:** refer to **Figures 20 & 21** (on specifics sheet).

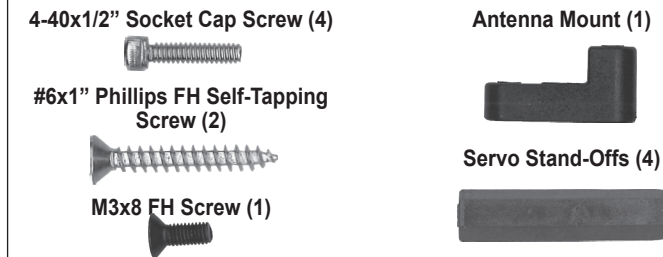
Note: Be sure there is adequate ventilation over ESC's heat sink!

- Using the included double-sided tape, mount ESC to chassis.
 - ESC can be mounted to chassis with the included #6x1" Phillips FH self-tapping screws (see **Figure 13**) — chassis and/or stone guard will need to be drilled and holes countersunk to do this.
- Refer to the ESC instructions for further installation instructions.

2. INSTALL RECEIVER AND ANTENNA MOUNT

- Select mounting position for receiver and antenna — *refer to Figure 14* (on specifics sheet).
 - **For OFNA & Kyosho Dual Battery Setups:** refer to **Figure 15**
 - **For Losi 8ight:** refer to **Figure 14** (on specifics sheet).
- Install Receiver: refer to receiver instructions.
- Using a 2.0mm Hex Wrench, install plastic antenna mount (*in Add'l Hardware Bag — refer to Figure 13*), using the M3x8 FH screw. Drill out the other hole (as needed) to fit the antenna tube that came with nitro vehicle.

FIGURE 13: Additional Hardware Bag Contents (#65-5010-3)



GEARING SETUP

Refer to Vehicle Specifics Sheet for Novak's recommended Gearing Starting Points.

Motor operating temperature is the ONLY way to set vehicle gearing

BE SURE TO CREATE SUFFICIENT VENTILATION

The Motor and Speed Control should not exceed 160-170°F MAX at end of the run!

Change the gearing to avoid overheating!

DO NOT FREE-REV MOTOR!

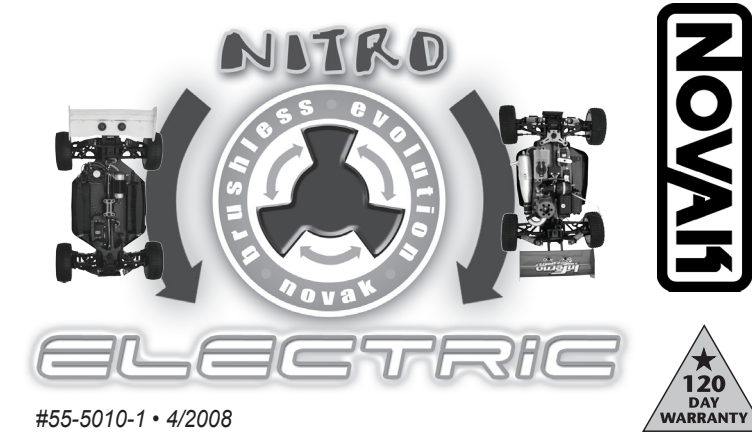
Free-running your brushless motor in a no-load condition can cause rotor failure & ESC transistor damage and will void the product's warranty.



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BRUSHLESS CONVERSION KIT INSTRUCTIONS



The Ultimate Conversion Kit to Convert Nitro Buggies to Electric Power!

Novak's Brushless Conversion Kits allow drivers to experience the benefits of brushless with a leaner, cleaner, less noisy 1/8-scale car with faster acceleration and speeds comparable to nitro. The Novak Brushless Conversion Kits were designed specifically for Novak's 550-size, HV-Series of sensored brushless motors and include all of the necessary conversion components. **A Novak High-Voltage Brushless ESC and HV Brushless Motor are not included but required for completion.**

PRECAUTIONS

PLEASE READ ALL INSTRUCTIONS BEFORE STARTING VEHICLE CONVERSION. The instructions for this conversion kit are guidelines for installation. Some customization and variance may be needed.

MUST BE 18 YEARS OR OLDER

Installation of this kit requires the use of power tools. Adult supervision is required for users under the age of 18.

NOVAK 550-SIZE MOTORS ONLY

The motor heat sink included in this kit was specifically developed for Novak 550-size, HV-Series of Brushless Motors. Use of the heat sink on other motors may cause damage to the motor.

MAY VOID VEHICLE'S WARRANTY

Refer to the warranty statement of your vehicle's owner's manual.

FOLLOW ESC & MOTOR PRECAUTIONS

Refer to Novak's "Precaution" sections of instruction manuals.

HIGH QUALITY BATTERIES ONLY!

Stick type or pre-assembled NiMH sport packs are **NOT RECOMMENDED**. Novak recommends using high quality (20C minimum) Li-Poly battery packs for better balance, lower vehicle weight and longer run times.

ACCESSORIES

MOD 1 PINION GEARS FOR 5MM SHAFT [Novak #5100-5105]

HV BRUSHLESS MOTOR 5MM UPGRADE KIT [Novak #5924]

SUPER-FLEX SILICONE 14G WIRE [Novak kits #5500 & 5508]

LEAD-FREE 3% SILVER SOLDER [Novak kit #5830]

TOOLS NEEDED

- ROTARY/DREMEL TOOL WITH CUT-OFF WHEEL AND SANDING DRUM
- POWER HAND DRILL
- 3.6mm OR 9/64" DRILL BIT
- 4mm OR 5/32" DRILL BIT
- 3/32" HEX WRENCH
- 3.0mm HEX WRENCH
- 2.5mm HEX WRENCH
- 2.0mm HEX WRENCH
- PHILLIPS SCREWDRIVER
- 90° COUNTER SINK TOOL
- THREAD-LOCKING AGENT

CONVERSION KITS AVAILABLE

The following Novak Brushless Conversion Kits are available (Refer to www.teamnovak.com for additional and/or updated kit compatibility information)

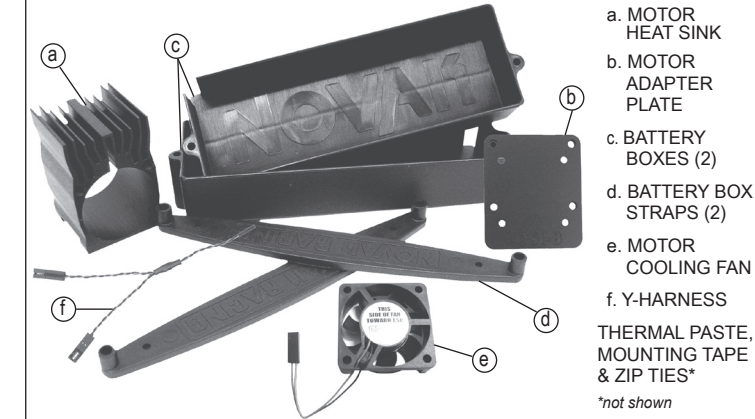
- #5010 Associated® RC8™ for Team Associated RC-8 Buggy
- #5011 CEN® Matrix™ for CEN Matrix C-1 Buggy
- #5012 Hot Bodies® Lightning™ for Hot Bodies Lightning2 Evo Pro Buggy
- #5013 Kyosho® Inferno™ for Kyosho Inferno 777, 777 SP-1, SP-2, SP-2WC, and Sport ST-R Buggies
- #5014 Mugen® MBX5™ for Mugen MBX5 and MBX5R Buggies
- #5015 OFNA® 9.5™/Ultra™ for OFNA 9.5 Series Buggies (Violator™, Ravenger™ and Jammin X1™) and the OFNA Ultra Series Buggies (MBX™, Comp™ and LX1™)
- #5016 OFNA® Hyper 8™ for OFNA Hyper 8 and Hyper 8.5 Buggies
- #5017 OFNA® Hyper 7™ for OFNA Hyper 7 Buggies
- #5018 XRAY® XB8™ for X-Ray XB8 TQ and XB8 EC Buggies
- #5019 Losi® 8ight™ for Team Losi 8ight Buggy

Car models listed are the registered trademarks of their respective company.

INCLUDED ITEMS

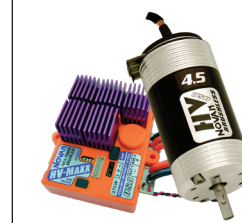
FIGURE 1: Included Items

There are four Hardware Bags included and are detailed in the relevant instruction sections.



- MOTOR HEAT SINK
 - MOTOR ADAPTER PLATE
 - BATTERY BOXES (2)
 - BATTERY BOX STRAPS (2)
 - MOTOR COOLING FAN
 - Y-HARNNESS
- THERMAL PASTE, MOUNTING TAPE & ZIP TIES*
*not shown

NOVAK HV BRUSHLESS SYSTEM REQUIRED



*HV4.5 is for high-speed runs only

This kit requires a Novak HV Brushless ESC and a 550-size HV Brushless Motor for completion.

Compatible Novak HV Brushless Motors:

- HV4.5*, HV5.5, HV6.5, or HV7.5 High-Voltage Brushless Motor with 5mm shaft (#3524-3527)
- HV4.5* & HV6.5 High-Voltage Brushless Motors (#3424 & #3426) and HV4400 (original). These motors have a 1/8" shaft and need to be updated with a 5mm rotor with Novak #5924 Upgrade Kit.

PRODUCT WARRANTY

This product is guaranteed to be free from defects in materials or workmanship for a period of 120 days from the original date of purchase (verified by dated, itemized sales receipt). Warranty does not cover incorrect installation, components worn by use, or any damage caused by a crash, flooding or natural disaster. Because Novak has no control over the installation of this conversion kit, no liability may be assumed nor will be accepted for any damage resulting from the use of this product. By the act of installing the components of this conversion kit, user accepts all resulting liability. In no case shall our liability exceed the product's original cost. We reserve the right to modify warranty provisions without notice.

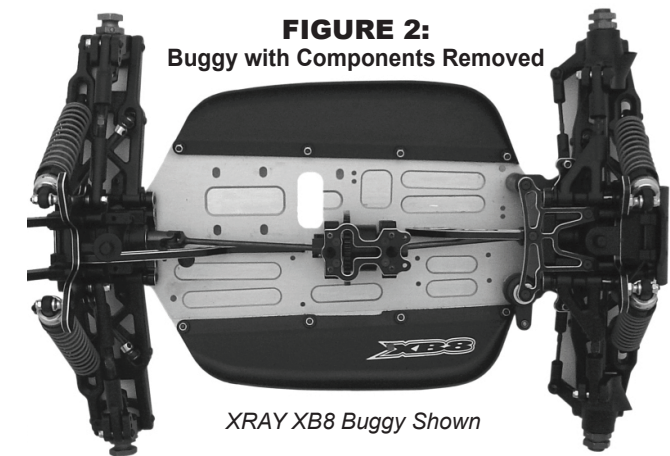
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STEP 1 - REMOVE NITRO COMPONENTS

1. REMOVE NITRO COMPONENTS

Remove the following items from your buggy (see *Figure 2*).

- Nitro Engine
 - Muffler
 - Fuel Tank
 - Radio Box (keep for Losi 8ight)
 - Throttle Servo
- Steering Servo and Mount (keep for all conversions)
 - Mechanical brake assembly parts
 - Other parts specific to the fuel engine (keep mounting screws)



2. CLEAN BUGGY

If you are starting with an old buggy that is full of greasy dirt, we highly recommend that you *thoroughly clean your buggy*.

For STEPS 2-5: Refer to the vehicle-specific sheet that is located in the bag with the motor adapter plate.

STEP 2 - INSTALL STEERING SERVO

For Losi 8ight Vehicle: refer to *Figure 16* (on specifics sheet).

1. REMOVE & MODIFY SERVO TRAY

Cut off the part of the servo tray that holds the throttle servo. This is best done with a Dremel Tool with a carbide cutting wheel. Round off the sharp corners where necessary — see *Figures 3 & 4*.

Make sure that the three or four (depending on kit) servo tray mounting post holes remain intact.

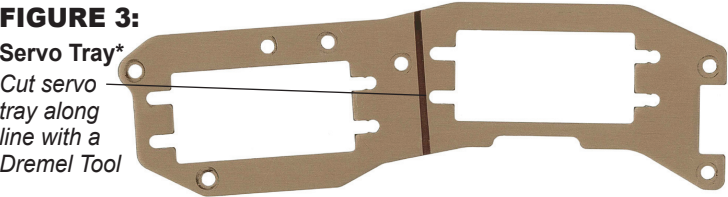


FIGURE 4: Modified Servo Tray*

Be sure to smooth sharp corners and keep mounting holes intact.

*OFNA Hyper 7 Servo Tray shown

2. RE-INSTALL STEERING SERVO ASSEMBLY

Install steering servo assembly to chassis and hook up steering linkage. Refer to *Figure 14* on specifics sheet (or *Figure 15* for dual battery set-ups if applicable).

- For Associated RC-8: You can either mount the steering servo upright (vertical) or on its side (horizontal).

STEP 3 - INSTALL BATTERY BOX

For optimal side-to-side balance and vehicle performance, Novak recommends installing one battery box. Novak's battery box can accommodate two, 2S Li-Po packs, which provides excellent power and runtime.

For Dual Battery Box Setups: Refer to *Figure 15* on the backside of the vehicle-specific sheet for dual battery box instructions for the OFNA 9.5 (#5015) and Kyosho Inferno (#5013) series buggies. The other buggies require major modifications to mount a second battery box, and we don't recommend it.

FIGURE 5: Battery Box Hardware Bag Contents (#65-5010-1)

Note: There are two bags included — one for each battery box.

M4x16 BH Screw (2)



M4x20 FH Screw (2)



M4x20 BH Screw (2)



M3x8 BH Screw (2)



M4x9 Washer (6)



M4 Post (1)



Body Clip (1)



Rubber Foot (1)



Plastic Spacer (2)



Hardware Bag contents in *Figures 5, 9 & 13* are actual size and can be used for comparison.

The following instructions are for a single battery box installation.

1. LOCATE POSITION FOR BATTERY BOX

For the best side-to-side balance, we recommend installing the battery box on the right side of vehicle (left side for Losi 8ight).

2. SELECT PROPER BATTERY BOX & HARDWARE

On the bottom of the battery box, there is a **LEFT** and **RIGHT** notation. Follow the list below to know which box and what hardware is used to correctly mount the battery box in your vehicle.

Model Number	Battery Box(es)	Screw Front*	Screw Rear*	Front/Rear #Washers	Rubber Foot
#5010 Associated RC8 (Horiz)	Left	BH	FH	0 / 6	1
#5010 Associated RC8 (Vert)	Left	FH	FH	6 / 6	1
#5011 CEN Matrix	Right	FH	FH	6 / 6	0
#5012 Hot Bodies Lightning	Left	BH	FH	2 / 6	1
#5013 Kyosho Inferno	Left	BH	FH	3 / 6	1
#5013 Kyosho Inferno (Dual)	Both	BH (2)	BH (2)	0 / 0	0
#5014 Mugen MBX5	Right	BH	FH	2 / 4	1
#5015 OFNA 9.5 / Ultra	Right	FH	FH	6 / 6	1
#5015 OFNA 9.5/Ultra (Dual)	Both	BH (2)	BH (2)	0 / 0	0
#5016 OFNA Hyper 8	Left	BH	FH	0 / 5	1
#5017 OFNA Hyper 7	Left	BH	FH	0 / 5	1
#5018 XRAY XB8	Left	BH	FH	0 / 8	1
#5019 Losi 8ight	Left	FH	BH	5 / 4	1

* BH is for M4x16 button head screw; FH is for M4x20 flat head screw.

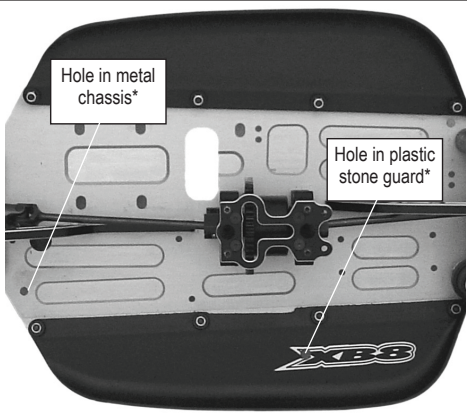
(continued)

3. LOCATE & DRILL BATTERY BOX MOUNTING HOLES

- Drill completely through the two mounting screw holes in the battery box with a 3.6mm (or 9/64") drill.
- Position the battery box in the buggy. The front of battery box and the battery wires must clear the steering servo and its linkages. The back of the battery box must go inward as far as possible so that it will clear the body. Box must be at least 4mm (or 5/32") away from the spur gear. Refer to *Figure 14* (on vehicle specifics sheet) for correct location.

FIGURE 6: Sample Location of Drilled Mounting Holes for Battery Box.

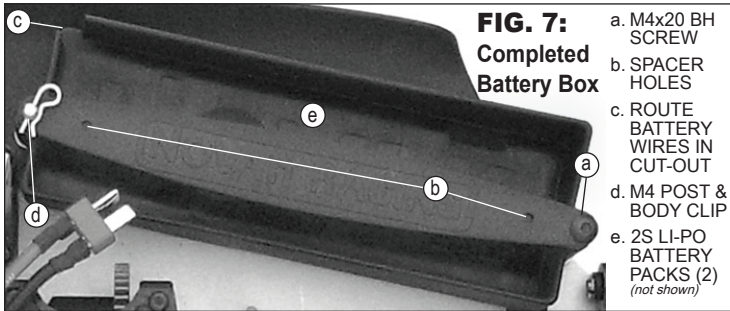
XRAY XB8 buggy shown. Refer also to *Figure 14* on insert.



*hole location for typical battery box location.

- With the battery box in the correct location (refer to *Figure 14* on specifics sheet and double check this location), spot drill the first hole (front or back) with a 3.6mm (or 9/64") drill bit, going down through the hole in the battery box — Refer to *Figure 6*.
- From one of the *Battery Box Hardware Bags*, gather the needed screws and washers — see *table & Figure 5*. A button head (BH) screw mounts the battery box to the plastic stone guard, and the flat head (FH) screw mounts battery box to the metal chassis.
- After you have marked the hole, remove box and drill a 4mm hole in this location. Using a 2.5mm Hex Wrench, mount box with the proper screw (see *table*) and correct number of washers. Snug up screw. This allows you to more accurately locate second hole.
- Repeat steps c through e for the second battery box hole — see *Figure 7* for completed battery box.

Note: If hole is in the metal chassis, the hole must be countersunk on the bottom of the chassis.



4. MOUNT BATTERY BOX

Remount the battery box with the proper screws, washers and rubber foot (if needed).

- Screw from the bottom of the chassis.
- If a rubber foot is used, it will go under the inside rear corner of the battery box for more rigidity, except Losi 8ight — see *Figure 14* (on vehicle specifics sheet) for correct location.

Note: In some installations, some of the stone guard screw posts may interfere with the ribs on the bottom of the battery box. Simply remove that portion of the rib until you have proper clearance. When you are done, you should have a stable battery box with little rocking motion.

(continued)

STEP 3 INSTALL BATTERY BOX (Continued)

5. INSTALL BATTERY BOX HOLD DOWN STRAP

- With a 2.5mm Hex Wrench, screw one end of the battery strap into battery box with a M4x20 BH screw — refer to *Figure 7*.
- At the other end, screw in an M4 post and use a body clip to fasten the battery strap.
- The size of the batteries will determine which direction you place the strap on the box. For thin batteries, attach one of the included plastic spacers with an M3x8 BH screw on each 3mm spacer hole — refer to *Figure 8*. Tighten using a 2.0mm Hex Wrench.

Note: The M4 post should be placed on whichever end of the battery box that has body clearance for it, which is usually the back.

FIGURE 8: Battery Box with Thin Batteries



STEP 4 - INSTALL BRUSHLESS MOTOR

A Novak 550-size brushless motor is required for this conversion kit. If the motor does not have a 5mm output shaft, the motor needs to be upgraded (Novak Kit #5924). This step uses parts from the Motor Hardware Bag — see *Figure 9*.

FIGURE 9: Motor Hardware Bag Contents (#65-5010-2)

M3x16 BH Screw (2)



M3x8 FH Screw (4)



M4x10 FH Screw (4)



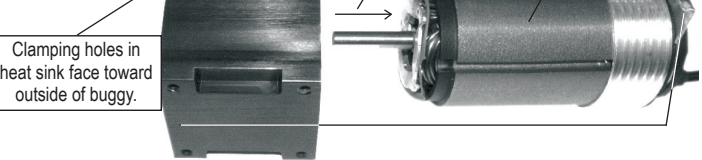
M4 Nylon Insert Lock Nut (4)



1. INSTALL MOTOR HEAT SINK

- Remove front endbell (end with output shaft) and sleeve of Novak 550-size brushless motor by removing the three 4-40 cap head screws, using a 3/32" Hex Wrench and sliding off the endbell — being careful not to lose any shim washers.
- Using the included cotton swab, apply a thin coat of thermal paste to outside of the motor's stator and to the inside of the heat sink sleeve.
- Slide heat sink onto motor, being sure that the two clamping screw holes in the heat sink face the outside of buggy — see *Figure 10*. Refer to *Figure 14* (or *Fig. 15* for applicable dual setups) on the specifics sheet for direction of motor solder tabs.

FIGURE 10: Motor Heat Sink Installation



- Replace front endbell and tighten the three motor screws.
- Slightly re-loosen the three motor screws (one turn each) and, using a 2.0mm Hex Wrench, tighten the M3x16 BH heat sink clamping screws.
- Re-tighten the three 4-40 cap head screws on the motor's front endbell.

(continued on back)